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ABSTRACT

This paper contends that much of what passes as "educational research" has all the appearance, but little of the substance, of scientific research and that the educational community should realize this fact and condemn the imitation, while working to improve scientifically based and conducted projects. Problems in the field center around (1) the mechanisms, attitudes, political structures, and reward systems existing in elementary and secondary education; (2) the time span allowed in developing proposals and conducting research and for results to become evident; (3) the self-reinforcing attitude of distrust and doubt among educators, who are wary of new research because of previous unfavorable research. Responsibility for changing the quality of research rests in four basic areas: (1) the financial support system, (2) participatory school systems, (3) the researchers, and (4) research training programs. Given the problems involving current systems which do not, and cannot, effect rigorous applied research in education and the general distrust regarding research as an effective change agent, the author makes nine recommendations to improve the situation, involving (1) organizational systems, (2) legal status of research organizations, (3) regional orientation, (4) materials and equipment identification and acquisition, (5) model research activities, (6) communication and implementation of data, (7) information dissemination, (8) communication and implementation of successful programs, and (9) feedback into training programs. (MB)

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RESEARCH IN ELEMENTARY AND SECONDARY EDUCATION (FOOL'S GOLD?)

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Introduction

Educators, lawmakers and the public in general are showing increasing disenchantment with research as a useful, problem-solving method for elementary and secondary schools. The prospect for research is serious enough that we, as professionals in the field, should review what is causing this precipitous decline in support. Briefly, the arguments surrounding sciontific research in education have run something like this. Research advocates point to extensive achievements attained through scientific research that not only have benefited society, but that have also enhanced the ability of science itself, to undertake rigorous studies of a more complex nature. Integrated circuitry, for example, is cited as having provided for development of computers that are physically smaller in size but which can manipulate data with greater speed and accuracy. These increased capabilities, in turn, have led to the development of more sophisticated analytic methods. Why, then, the advocates ask, do we not receive support to bring these resources effectively to bear on educational problems that impair our ability to achieve cost-effective high quality education?

Critics of educational research respond by referring to the era of the 1960's and early 1970's when large sums of money were made available to educational institutions through various governmental and private agencies for research and development of innovative programs, instructional strategies, products, services, and management modes. They point out that educational researchers were actively involved during that period, but their efforts contributed virtually nothing toward substantial improvement in any of these areas. Further, they contend, many research findings were obscure and often in direct contradiction with one another, leading to adumbration instead of illumination. The critics allege that the research conducted was often ill-conceived, poorly designed, ineptly handled, and many times was misdirected, failing to address the root of the problem requiring investigation. Thus they conclude, based on past experience, further research in education is not likely to contribute useful information and is, therefore, of little or no value.

It is a major contention of this paper that most research in education, both past and present, is a sort of "Fool's Gold." That is, the work to date has all the appearance, but little of the substance, of scientific research. Therefore, what is being condemned is not scientific research itself, but useless imitations of it.

Why Fool's Gold?

There are numerous current problems associated with implementing scientific research in education. These problems, for the most part, center around the mechanisms, attitudes and political structures that exist in elementary and secondary education. For example, rarely is the opportunity available for meeting the logical conditions of the hypothetico-deductive model in educational settings. Here I am referring to both the technical requirements (e.g. randomization and experimental control of relevant variables) and political requirements (e.g. a genuine desire on the part of educators and the public in general to seek truth, no matter how much it hurts). Political constraints are often generated by local social conditions. For instance, those involved in elementary and secondary education often lack freedom in decision-making because a particular specific outcome is desired by the community (or some power segment therein), regardless of the educational consequences.

A further factor that inhibits the conduct of scientific research is that requisit reward conditions for seeking truth and making rational change are not present in education. Instead, the general scene appears to be one of fear and defensiveness associated with decision-making. The end result is that no reward is given for the well-done, definitive, objective study because there is no significant evidence that individuals in education, governmental agencies or the public in general, really want such research. In fact, quite the opposite may be true. Where research adequacy is questionable, the decision-maker is afforded the alternative of making the popular decision without fear of retribution from the findings of the report.

This anomaly is commonplace, due to the nature of the existing environment where adequacy of educational research is usually suspect. Thus, the user can be selective in citing those studies which support his/her position. Opposing research results are easily tarred with a wide, sweeping brush since neither the public nor educators are able to discriminate between the jargon of the "quack" and the technically precise language of the research specialist. It is, therefore, easy for the decision-maker to conclude, as best suits the immediate political situation, that the one is the other, leaving everyone in the dark about which is really true. To add to the problem, educators frequently are unable to separate the competent research (and researcher) from the incompetent or unscrupulous through either review of published studies or recommendations from universities.

The importance of this problem is easily seen, for if schools were unable to readily dismiss unpalatable research findings, they would be required to take action on the acquired knowledge. It is apparent from the amount of support one finds among elementary and secondary educators that they do not want to be put into this position. As a result, one has a form of Gresham's Law in effect here: that inferior coinage inevitably replaces superior coinage. As long as poor studies are available in such abundance, it tends to discourage the competent researcher. As a result, the market is flooded with Fool's Gold and the real article disappears from circulation.

A second reason why much of what is called educational research is only Fool's Gold is that those who seek solutions to educational issues tend to demand answers in unrealistically short time periods. This impatience is manifested in numerous ways, from Federal governmental agencies to local school districts. To illustrate—

A common frustration among recipients of Requests for Proposals, is the short timeline between receipt of an RFP and the due date of the detailed proposal, and between the time of project commencement and the date when impact results must be presented. Often there is insufficient time to develop an appropriate

conceptual framework or research design and to allow enough time for the impact of the treatment to manifest itself. Thus many projects which may look promising do not obtain continuation funds because they do not show statistically significant change in the time allotted by the RFP.

The Impact of "Fool's Gold" Research

The most serious consequence of non-scientific "Fool's Gold" research has been the generation of an atmosphere of distrust and doubt among educators. They doubt that research can be an important tool in dealing with their problems. And even if it could, they doubt whether those of us in research are able to communicate valid research findings to them in a manner that is meaningful and useful. In several past graduate research courses that I have taught in an area university, I have attempted to instill in the students an understanding of the nature, role, and methods of the scientific approach for obtaining knowledge that will aid in overcoming educational problems. This is followed by a requirement that they conduct a review of recent (past ten to fifteen years) research completed within their own areas of specialty.

Without going into the numerous inadequacies in design and conduct of research they typically identified, a general complaint frequently heard in their reports was their inability to understand the technical terminology found in the research and the difficulty they experienced in attempting to interpret the statistical tables presented. Since most of the substantive discussions in the reports they read made reference to either analytical techniques or some portion of the tables, the teachers were frequently unable to meaningfully interpret the findings or understand the discussion. Often, the report formats not only turned the teachers off, but added to their dissatisfaction of the usefulness of research in education in general. The teachers showed even greater unhappiness with the inconsistencies and contractions found in studies purporting to be investigating similar problems.

As an interesting aside, we found very few teachers who have heard of AERA and practically none have read its publications. For whom does the organization exist? Researchers? University professors? These groups most likely represent the major portion of the organization's readership and membership. Yet, where do the educational problems exist? At the elementary and secondary levels. And it is elementary and secondary educators that should be the target audience of an organization that has American Education as a part of its title. These same criticisms could be directed at the National Council for Measurement in Education and other organizations as well. I suspect very few teachers are aware of the existence of NCME. Yet testing problems are on the forefront of significant issues in American elementary and secondary education today, and educators are almost totally unaware of the nature of current testing problems and the studies underway that will hopefully lead to better understandings of mental measurement systems.

If one wished to continue the basic thesis of this paper in terms of detailing more specifics, it would be easy to do. However, it seems justified to conclude that the point has been made: disciplined, scientific research is generally not being conducted in elementary and secondary schools today.

Problems with Current Systems

As I've tried to point out, the blame for this situation is not one-sided, but is rather multi-faceted. Responsibility for successful research lies in four basic areas: the financial support systems underlying the research, the school systems which participate in the research, the researchers themselves, and present research training programs. The actual conduct of research, however, is currently most often undertaken through one or more of four types of agencies: the universities; federal, state, and local governments; voluntary non-profit cooperatives; and private corporations. In spite of the vast availability of talent and

support afforded educational research in the past through these agencies, it is evident that they are not effective for completing well-disciplined research in education.

Before offering recommendations for developing a model for an organizational system, perhaps a quick review of factors that have precluded current agencies from being successful might help clarify the rationale for the recommendations.

Problems with Universities

Universities have historically fulfilled three roles in the area of educational research; the training of researchers, the development of technological capabilities to support research data organization and interpretation, and the use of research consultants to assist schools in their research efforts. In my judgment, the universities have been least successful in the first and third roles, and strikingly successful, particularly over this past decade, in the second role. Perhaps the most severe limiting factor related to university involvement lies in their inability to devote significant resources internally over long periods of time, to local multiple, complex educational issues.

Consequently, their assistance has been generally sporatic and case by case, based on specific elementary and secondary educational requests. Where universities have attempted to initiate scientific research, local schools tend to resist, or only cooperate to a limited degree. The resistance is usually due to a fear on the part of school personnel of university infringement in their domain and/or a feeling by the educators that the results of the investigation will be of little value to the schools anyway.

Problems with Governmental Bureaucracy.

Federal and state governmental agencies are typically too far removed from the front lines of education to be effective in conducting educational research. As a result, they are forced to work through second, third and fourth parties in attempting to accomplish their goals. One evidence of this shortcoming has been grant award procedures which have led to funding of inept research. Local governmental agencies, on the other hand, are so close to the problems that they are unable to deal with them objectively or even, perhaps, to view them in proper perspective.

Problems with Cooperatives

Cooperative, non-profit research agencies have provided limited usefulness in conducting survey research, but lack requisite controls for undertaking important research due to competing forces among the elements of the cooperative. Also, member schools possess the ability to maintain direct control over the activities of the agency, keeping them at bay and away from "touchy" issues (i.e., those practices and activities which may be a part of teacher negotiations and arbitration, those where financial interests may be involved, and those which may be socially or politically unpopular).

Problems with Private Consultants

The fourth agency, the private corporation, has an obvious inhibiting restriction to its effectiveness--the profit motive basis underlying the very existence of the organization itself. This was clearly brought out in a recent publication where a nationally known researcher/evaluator admitted to a hesitancy about "biting the hand that feeds it" in research reporting.

Given the failures of Fool's Gold research, school systems have resorted to philosophical, intuitive, and subjective ("tried and true") beliefs as the fundamental rationale for selection, rejection, or alteration of educational practices. There are even those who advocate a greater reliance on faith as the basis of decision-making. The reluctance of educators to move toward scientific research as a basis for decision-making is based on their past experience with research. It has even led to the development of a strong belief that most educational achievements are not empirically measurable, a defensive and weak argument.

Due to the inherent characteristics of existing agencies, the problems cited in using scientific research to provide a rational basis for effecting educational change, are likely to continue. Thus, the logical conclusion is that there must be change in the systems of educational research if the latter is to become potent.

The fundamental propositions of this paper are: (1) that new organizational strategies and systems must be developed outside of (but perhaps in association with) research agencies currently in existence to change attitudes toward research as a means of resolving educational problems, and (2) that the catalyst for this must be developed by changing the mechanisms for researching educational problems.

Recommendations

The nature of some of the required changes are easily identifiable while others are not. The mechanisms needed to support scientific research are evident. For example, increased efficiency in data acquisition, greater sophistication in data reduction, and related enhancements in technology that will accommodate

organized massive data storage and rapid retrieval are research needs that are fairly obvious. The more difficult aspects to outline are those related to the specification of more effective organizational strategies and systems, including those for training the researcher and establishing methods of actually conducting truly scientific research in field settings. As stated above, it is here that new systems and procedures need to be conceptualized and developed, utilizing those components of existing agencies that have demonstrated themselves to be successful, to accomplish this goal.

Given the premise that the current systems do not and cannot effect rigorous applied research in education and that a general distrust regarding the change potential of research findings in education exists among educators and the public in general, the following recommendations are offered for consideration:

1. Conceptualize new organizational model systems that will have educational research as their prime reason for existence. I believe that to be successful, such systems must have at least three requisites:

   a. A close relationship, professionally and geographically, to elementary and secondary educational systems.

   b. Functional, but not dependent or subordinate, relationships with local, state, and federal level governmental agencies.

   c. Close and active liaison with university resources.

2. Devise a legal basis for the model systems so that they may pursue, through scientific research, educational problems, offsetting restrictive political and social forces associated with present voluntary participatory systems.

3. Develop the systems into an intra-state regional framework with legal authority lying somewhere between local and state governmental levels, such as intermediate school educational service centers. This is not to add to existing bureaucracy, but rather to provide a means of protecting individual districts against the mindless predation of the distant state and federal bureaucracies and, on the other hand, to overcome the resistance to change found at the local level. This would also provide a method for coordination of efforts among the agencies.

4. Identify and acquire the resources, materials, and equipment necessary to support the activities of the research system. These must include data management systems capable of handling massive quantities of data rapidly and efficiently on a cost-effective basis.

5. Undertake model research activities utilizing designs free of present constraints and based on important existing educational problems. Although I realize this is more easily said than done, it must be accomplished in order to demonstrate the possibility of such occurrences.

6. Devise effective strategies for both communicating the results of such research activities to elementary and secondary educators and providing a means of assisting schools in implementing changes resulting from the research findings. These efforts must be cohesive and well-thought out to overcome prevailing untrusting attitudes.

7. When the changes have demonstrated positive impact, disseminate the occurrences widely, to prove to the public in general that quality research can make a difference in educational practice.

8. Once a model has proven to be successful, implement it widely and establish an inter-system communication network so that more pervasive educational problems can be investigated through concerted efforts.

9. Utilize information gained through this process as a basis for modifying and improving research training programs that will turn out researchers competent to the tasks demanded of them.

I am aware that to implement the recommendations would be an arduous task, fighting uphill battles (particularly in the social and political arenas), but believe them necessary if educational research is to prove itself. Once this is done, educational research is likely to acquire a general acceptance of value, overcoming Gresham's Law by reducing the supply of Fool's Gold research, and thus establishing scientific research firmly as an integral part of American education.